Prevalence of idiopathic hirsutism

Enrico Carmina

Department of Endocrinology, University of Palermo, Palermo, Italy

(Correspondence should be addressed to E Carmina who is now at Department of Obstetrics and Gynecology, Columbia University, 630 West 168th Street, PH16, Room 138, New York, New York 10032, USA)

Abstract

Objective: To evaluate the prevalence of idiopathic hirsutism in a large population of hirsute women.

Design: 588 hirsute women (mean age 24 ± 1, range 15–36 years) were evaluated as outpatients at the Department of Endocrinology of the University of Palermo, Italy. The diagnosis of idiopathic hirsutism was established in hirsute patients presenting regular ovulatory menstrual cycles and normal serum androgen levels (total testosterone, unbound testosterone and dehydroepiandrosterone sulfate).

Methods: Hirsutism was calculated by the Ferriman-Gallwey-Lorenzo index. Serum androgens were evaluated in the follicular phase (days 5 or 6) and normal androgen ranges were calculated as the mean ± 2 S.D. of serum levels of 30 ovulatory non-hirsute women. The presence of ovulation was determined by serum progesterone levels during the presumed luteal phase (days 21 or 22). All steroids were determined by specific RIAs.

Results: 36 hirsute women (6%) had regular ovulatory cycles and normal androgen levels and were diagnosed as being affected by idiopathic hirsutism.

Conclusions: Idiopathic hirsutism is a relatively uncommon cause of hirsutism, affecting approximately 6% of our population.

Introduction

Idiopathic hirsutism (IH) is considered to be one of the most common forms of hirsutism (1, 2) and in some studies prevalences of 50–55% of all hirsute women have been reported (3, 4).

However, the criteria used to make a diagnosis of IH have often differed and have changed over time. Recently, we and others have proposed that a diagnosis of IH should only be reached in hirsute patients who have normal androgen levels and regular ovulatory menstrual cycles (5, 6).

For many years the Department of Endocrinology at the University of Palermo has operated an outpatient unit for the diagnosis and therapy of hirsutism. We reevaluated the prevalence of IH in our population according to the above proposed criteria. Our data show that in our population IH is a relatively uncommon cause of hirsutism affecting about 6% of all hirsute women.

Materials and methods

Subjects

We retrospectively evaluated the data of 588 hirsute women (mean age 24 ± 1, range 16–36 years) who, between 1980 and 1996, were studied as outpatients at the Department of Endocrinology of the University of Palermo.

Hirsutism was determined by a modified Ferriman-Gallwey-Lorenzo index (7) and only patients with scores higher than 6 were considered hirsute and included in the study. Menstrual history was carefully recorded and menstrual cycle lengths shorter than 21 days and longer than 35 days were considered abnormal (8). Thirty normal ovulatory women (mean age 23.6 ± 1, range 16–34 years) were used as controls.

Protocol and measurements

During the midfollicular phase, between days 5 and 6, a blood sample was obtained between 0800 and 0900 h after an overnight fast, for measurement of total testosterone, unbound testosterone and dehydroepiandrosterone sulfate (DHEAS).

In patients who reported normal menstrual cycles, serum progesterone was also evaluated (days 21–22). Progesterone values lower than 3 ng/ml were considered indicative of anovulation. Patients who had low progesterone levels underwent another progesterone measurement during the presumed luteal phase of the following cycle. Only patients with two consecutive low progesterone levels were considered anovulatory.
Serum hormone levels were quantified by well-established methods which had been validated previously in our laboratory. All steroids were measured by specific RIAs after extraction using previously described methods (9).

In all assays, intra-assay and interassay coefficients of variation did not exceed 6% and 15% respectively.

Statistics
Analysis of the data was performed using Student's t-test for comparison between the two groups: hirsute women and controls. \( P < 0.05 \) was considered significant. Normal ranges were calculated as the mean ± 2 S.D. of values obtained in normal controls. Results are expressed as means ± S.E.

Results
In Table 1 normal androgen values and the upper limit of normal circulating androgens as determined in 30 non-hirsute controls are depicted.

In controls, mean serum progesterone was 11.2 ± 0.3 ng/ml. Two consecutive serum progesterone levels lower than 3 ng/ml were considered to indicate anovulation.

Normal menstrual cycles were seen in 50.8% of hirsute women (n = 298) while 49.2% had irregular cycles. Forty-two hirsute women who reported normal menses were anovulatory. Their progesterone serum levels averaged 0.2 ± 0.1 ng/ml and were significantly different from levels in controls (\( P < 0.01 \)).

Only 48 (8.1%) hirsute patients had regular ovulatory cycles and normal values of serum testosterone and DHEAS. When the level of unbound testosterone was also taken into account, the prevalence of idiopathic hirsutism decreased to 6% (n = 36) of all hirsute women (Fig. 1).

Mean serum androgen levels in hirsute patients with idiopathic hirsutism were not significantly different from those of normal controls.

Discussion
The criteria used to make a diagnosis of IH have been changing over the last years. In fact, while in the past IH was diagnosed in hirsute patients with normal menses regardless of their androgen levels (3, 4, 10), it is now clear that there is no motive to define idiopathic hirsutism as a disorder in which serum androgens are elevated and explain the presence of hirsutism. In addition, a normal menstrual history does not exclude the presence of anovulation. As has been reported previously (6) and in this study 14% of hirsute patients with normal menses had 2 consecutive low levels of serum progesterone which is suggestive of anovulation.

Of course, it can be argued if regular ovulatory cycles are needed to make a diagnosis of IH but we (11) and others (2) believe it is an important diagnostic criterion which may be useful in distinguishing patients with no alteration of androgen secretion (as we consider necessary in patients with idiopathic hirsutism) from patients who have mild polycystic ovary syndrome (PCOS).

Using these criteria, idiopathic hirsutism was a relatively uncommon cause of hirsutism with a prevalence of only 6% of all hirsute women. While it may be surprising, it has been observed that Azziz and Ochoa (6) who used similar diagnostic criteria reported a similar prevalence of IH in a North American population. Although differences in the genetic components of the various populations may determine differences in the prevalence of idiopathic hirsutism, the data of Azziz and Ochoa (6) and our data show that the real prevalence of IH is lower than previously imagined and probably ranges between 5 and 15% of all hirsute women and between 12 and 25% of hirsute women who have normal menses.

Consequently, it is necessary to re-evaluate what are the most common causes of hirsutism in women with normal menses. Our preliminary data show that PCOS is the most common diagnosis (12) in this subgroup of hirsute women.

References

Table 1 Serum androgen levels in 30 non-hirsute ovulatory women.

<table>
<thead>
<tr>
<th>Total testosterone (ng/dl)</th>
<th>Unbound testosterone (pg/ml)</th>
<th>DHEAS (µg/ml)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>38</td>
<td>1.8</td>
</tr>
<tr>
<td>s.d.</td>
<td>11</td>
<td>0.5</td>
</tr>
<tr>
<td>Upper range</td>
<td>60</td>
<td>2.8</td>
</tr>
</tbody>
</table>

Figure 1 Prevalence of idiopathic hirsutism.


9 Lobo RA & Goebelsmann U. Evidence for reduced 3β-hydroxysteroid dehydrogenase activity in some hirsute women thought to have polycystic ovary syndrome. Journal of Clinical Endocrinology and Metabolism 1981 53 394–400.

